

STATE OF NORTH CAROLINA

Approved Classification: _____

OFFICE OF STATE PERSONNEL

Effective Date: _____

Analyst: _____

POSITION DESCRIPTION FORM (PD-102R-92)

(This Space for Personnel Dept. Use Only)

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|---|--|-------------------------|
| 1. Present Classification Title of Position Transportation Engineer I | 7. Pres. 15 Digit Position No. | Prop. 15 Digit Pos. No. |
| 2. Usual Working Title of Position Assistant Group Leader | 8. Department, University, Commission, or Agency Transportation | |
| 3. Requested Classification of Position Transportation Engineer I | 9. Institution & Division Highways | |
| 4. Name of Immediate Supervisor | 10. Section and Unit Location & Surveys | |
| 5. Supervisor's Position Title & Position Number Transportation Engineering Supervisor I | 11. Street Address, City and County | |
| 6. Name of Employee | 12. Location of Workplace, Bldg. And Room No. | |

I. A. Primary Purpose of Organizational Unit:

The primary purpose of Location & Surveys is to serve as support services in providing engineering analysis, mapping and other data for the design of transportation facilities and the acquisition of property for the construction of transportation facilities.

B. Primary Purpose of Position:

This is beginning level engineering work in the independent application of professional techniques and standards to moderately difficult transportation, design, or analysis engineering projects, or in assisting higher level engineers on major or complex projects. This position will primarily address the functionality and applicability of survey data for project design with little supervision. This position will support higher level engineers in functional areas such as project design through the review and development of project data. This position is responsible for engineering coordination of projects with both in-house and Private Engineering Firm (PEF) field forces for in-house projects. This position will have primary responsibility in the contact of property owners during project development.

C. Work Schedule:

8:00 AM to 4:30 PM, or some variation thereof, Monday through Friday, for a total of 40 hours per work week. Flex time or seasonally variable work hours may be used in individual offices based upon needs and circumstances.

D. Change in Responsibilities or Organizational Relationship:

Duties of this position have expanded to include additional responsibilities in the area of monitoring PEF activities. Other additional responsibilities include safety and creation of traffic control plans for survey activities. Revised duties also include expanded project analysis and engineering evaluation of project data. Responsibilities in the supervision of survey crews has been reduced, in response to creation of a higher level technical position. The duties of these two positions more accurately reflect the differentiation between the need for engineering knowledge and technical survey knowledge in the Unit.

II. A. DESCRIPTION OF RESPONSIBILITIES AND DUTIES: Method Used (Check One) Order of importance____
Sequential order_____

Place an asterisk (*) next to each essential function. (See instructions for complete explanation.) Please note percentage of time for each function.

No. %

- 1 05 **Safety** - This position is in responsible charge of traffic volume analysis and establishment of traffic control plans for in-house survey crews and reviewing requirements and traffic control plans for PEF survey crews, to ensure the safety of the field crews and the traveling public. This would include coordination of traffic control plans and activities with Division Traffic Engineer, Incident Management Team, and Motorist Assistance Patrol Squad (if available). This position is responsible for implementation of the NCDOT safety policy including, but not limited to, investigation of incidents and preparation of support documentation, and safety training.
- 2 35 **Evaluation, Scoping, and Coordination** - This position will evaluate project requests and scope projects in field with or without Group Leader to determine what coverage and pertinent data may be necessary for design. This position will analyze proposed project limits to determine critical areas for the placement of controls and review same with field survey personnel. This includes, but is not limited to, proposed structure locations, prominent geological or cultural features, wetlands and other environmental features, and hydrographic needs. This position will coordinate with high level technicians, survey crew leaders, or PEF representatives in the planning of survey tasks to ensure that all pertinent design data is obtained. This position will participate in periodic field reviews of project with survey personnel (in-house or PEF) to insure that engineering data being obtained is sufficient and useable for project design.
- 3 35 **Analysis, Review, and Design** - This position will review all field data for completeness, compatibility, and compliance to engineering principles required for design. This position will review field data and project conditions to ensure that all information necessary for design has been obtained. This can include review of work performed by in-house survey crews or PEF's contracted to NCDOT. Analysis can include evaluation of Digital Terrain Models (DTM) and planimetrics to ensure that sufficient coverage has been obtained. This position will compute existing and proposed horizontal designs such as circular and spiral curve elements, including but not limited to multi-radius curves and compound or reverse spirals; offset distances between two alignments; points of intersection on curves, spirals, and tangents; and transitions between roadway sections. Analysis can also include evaluation of proposed horizontal and vertical alignments and may result in recommendations for revisions based upon design standards and existing conditions as determined from field surveys. This position is responsible for the preliminary draft of project survey reports for review and finalization by Group Leader. This position will review and evaluate litigation maps to ensure that rights of way and easements are adequate for construction and installation of environmental control devices.
- 3 10 **Property Owner Contacts** - This position will contact property owners during initial phases of project development for the purposes of sharing project information and collecting property information. This position will have the responsibility of the initial response to individual property owners or other private citizens in addressing their concerns about the project or aspects of survey activities.
- 4 05 **Technical Training** - This position will provide fundamental engineering training for technicians. This position will provide input into training needs for the technicians in the field office and for the Unit, including engineering and computer use.
- 5 05 **Personnel** - This position will provide input into technicians work plans and assist in PM counseling sessions as directed by Group Leader. This position will provide input into the hiring and development or disciplinary actions of employees.
- 6 05 **Other Duties** - as defined by higher level engineers or supervisors.

II. B. OTHER POSITION CHARACTERISTICS: (con't)

1. Accuracy Required in Work:

Engineering and surveying measurements and calculations necessary to millimeter reporting is required. A thorough knowledge of necessary data and proper format is needed. A basic knowledge of the principals, practices, and procedures of Civil Engineering as it is applied to highway design is required.

2. Consequence of Error:

Project delays and increased costs in preconstruction project development and during construction can result from poor execution of the duties of this position. Inaccurate procedures and/or failure to follow established guidelines and procedures can result in erroneous data being conveyed to others for use in design or property acquisition, requiring resurveys and redesign causing project delays and cost overruns. Poor control network establishment can result in complications in design and construction of adjoining projects. Erroneous data or failure to follow proper procedures could result in loss of court cases in which this position is involved. Misrepresentation or poor presentation can result in establishment of poor relations with property owners, which can then result in problems with those property owners throughout the design and right of way phases of projects. Poor understanding of legal and/or technical aspects of project can result in additional costs for litigation or further costs in proper establishment of boundaries. Faulty traffic control plans or misuse of policies could result in serious injury or death to survey crew members or the traveling public.

3. Instructions Provided to Employee:

Position requirements include sufficient experience and knowledge to enable the employee to perform the duties of this position. Goals are defined and procedural guidelines are established. Deadlines are established when applicable. It is usually up to the employee to ensure completion of tasks in a timely and accurate manner, and to determine the best method to resolve issues, provide and present data, or prepare for the assigned task. Instructions may be either oral or written and may be general or specific in nature, according to the type and scope of work.

4. Guides, Regulations, Policies and References Used by Employee:

NCDOT Highway Design Manual; AASHTO Geometric Design Policy; CADD and other computer references and manuals; General Statutes of North Carolina as related to Highways; NCDOT Personnel Manual; NCDOT Field Fiscal Procedures Manual; NCDOT Workplace Safety Manual; NCDOT and FHWA Manuals on Uniform Traffic Control Devices (MUTCD); Legal Principles of Boundary Surveying and other legal texts on surveying; various engineering and surveying texts including cadastral, geodesy, and route location; general practices, principles, procedures, and ethics of professional engineering and surveying as described by the NC State Board of Registration for Professional Engineers and Registered Land Surveyors; dictionary.

5. Supervision Received by Employee:

Once initial training has been completed, this is an independent position supervised by the Group Leader as needed. Regular review of activities is provided by Group Leader. Problems are either resolved at this level or referred to supervisors for involvement and resolution. Tasks and duties may be reviewed during and after completion, but due to the independent operation of this position, specific activities that lead to task accomplishment are not often supervised on a daily basis. Personnel matters are reviewed with immediate supervisor as needed. Personnel problems are referred to supervisor for resolution.

6. Variety and Purpose of Personal Contacts:

Personal contact is with the general public, staff of other Units, Divisions, or Branches of NCDOT, representatives of private engineering firms that may be doing work for this Unit, attorneys representing NCDOT or contesting property owners, County Manager's or Register of Deed staff working in tax offices, municipal engineering units, and utility representatives. Contact with property owners will be required on all projects for the purposes of sharing project information and collecting property information.

7. Physical Effort:

Physical labor involves both office and field work. Outside work may occur in any type of geographic conditions, at any time of day. Some physical labor such as traversing rough terrain, chopping brush, or carrying heavy or cumbersome equipment may be required at times. Travel to different areas of the state may be required for some tasks.

8. Work Environment and Conditions:

Work is 60% indoors, in a controlled environment; 40% of work requires field visits or activities in project development and review. Outside work is subject to any type of weather conditions and may involve periods of time in adverse conditions. This employee may be exposed to high volumes of traffic, animals, insects, snakes, and poisonous plants. Employee may also be required to confront irate citizens.

9. Machines, Tools, Instruments, Equipment and Materials Used:

Computers; CADD workstations; hand-held calculators; triangles, scales, and other hand-drafting or measuring equipment; manuals; large photographs and plan sheets; telephone. A working knowledge of the capabilities of survey equipment such as electronic theodolites, GPS receivers, data collectors, and others is required. Operation of motor vehicles is required.

10. Visual Attention, Mental Concentration and Manipulative Skills:

Computer/calculator operation, writing memos, and compiling reports require keypunch and writing abilities. Mental concentration is required to plan and coordinate field activities, review data, solve engineering problems, and work with others in problem solving. Visual as well as mental attention and ability is required in reviewing data and project evaluation.

11. Safety for Others:

This position has responsibility for the development of traffic control plans for survey operations on highway projects, which could impact both field survey crews and the traveling public. All plans must be evaluated with safety, effectiveness, and efficiency in mind. Safety audits are made on a monthly basis or when needed.

12. Dynamics of Work:

Engineering and design standards are often revised. Methods, procedures, and equipment used for collecting route location and other survey data, including survey equipment and computer hardware and software, are always being revised, upgraded, or improved. These changes require a continuous upgrading and maintenance of knowledge of the engineering and surveying professions.

III. KNOWLEDGES, SKILLS & ABILITIES AND TRAINING & EXPERIENCE REQUIREMENTS:

A. Knowledges, Skills and Abilities:

Working knowledge of the principles and practices of Civil Engineering as applied to the design of transportation related facilities. Working knowledge of procedures, methods and equipment used in performing engineering and other surveys. Thorough knowledge of mathematical applications, including algebra, geometry, and trigonometry. Skilled in CADD and in the use of office equipment such as calculators and computers. Ability to read, interpret and explain such things as construction plans, court records, title records, technical and procedural manuals. Ability to plan, direct, supervise, train, and evaluate the work of technicians; ability to understand and follow written or oral instruction, communicate with the general public and other non-technical groups; take notes and prepare or review reports.

B. 1. Required Minimum Training:

Graduation from a four year college or university with a Bachelor of Science in Civil Engineering and one and one-half years of progressive Transportation Engineering experience; or graduation with a Bachelor of Science in Engineering Technology and two and one-half years of progressive Transportation Engineering experience; or an equivalent combination of education and experience.

2. Additional Training/Experience:

Additional training as needed will be supplied by supervisor and Location & Surveys Unit or NCDOT Training Personnel.

3. Equivalent Training and Experience:

Graduation from high school and nine and one-half years of progressive transportation technician experience at the Transportation Technician III level or above or an equivalent combination of training and related experience. In lieu of a civil engineering degree (BS or AS), successful completion of the ITRE Highway Engineering Concepts Course will be required.

C. License or Certification Required by Statute or Regulation:

NC Driver's License is required.

Engineer-In-Training Certification required

IV. CERTIFICATION: Signatures indicate agreement with all information provided, including designation of essential functions.

Supervisor's Certification: I certify that (a) I am the Immediate Supervisor of this position, that (b) I have provided a complete and accurate description of responsibilities and duties and (c) I have verified (and reconciled as needed) its accuracy and completeness with the employee.

Signature _____ Title: _____ Date: _____

Employee's Certification: I certify that I have reviewed this position description and that it is a complete and accurate description of my responsibilities and duties.

Signature _____ Title: _____ Date: _____

Section or Division Manager's Certification: I certify that this position description, completed by the above named immediate supervisor, is complete and accurate.

Signature _____ Title: _____ Date: _____

Department Head or Authorized Representative's Certification: I certify that this is an authorized, official position description of the subject position.

Signature _____ Title: _____ Date: _____